McGraw-Hill DICTIONARY OF SCIENTIFIC AND TECHNICAL TERMS

Fourth Edition

On the cover: Pattern produced from white light by a computer-generated diffraction plate containing 529 square apertures arranged in a 23 × 23 array. (R. B. Hoover, Marshall Space Flight Center)

On the title pages: Aerial photograph of the Sinai Peninsula made by Gemini spacecraft. (NASA)

In addition, material has been drawn from the following references: R. E. Huschke, *Glossary of Meteorology*, American Meteorological Society, 1959; *U.S. Air Force Glossary of Standardized Terms*, AF Manual 11-1, vol. 1, 1972; *Communications-Electronics Terminology*, AF Manual 11-1, vol. 3, 1970; W. H. Allen, ed., *Dictionary of Technical Terms for Aerospace Use*, 1st ed., National Aeronautics and Space Administration, 1965; J. M. Gilliland, *Solar-Terrestrial Physics: A Glossary of Terms and Abbreviations*, Royal Aircraft Establishment Technical Report 67158, 1967; *Glossary of Air Traffic Control Terms*, Federal Aviation Agency; *A Glossary of Range Terminology, White Sands Missile Range, New Mexico*, National Bureau of Standards, AD 467-424; *A DOD Glossary of Mapping, Charting and Geodetic Terms*, 1st ed., Department of Defense, 1967; P. W. Thrush, comp. and ed., *A Dictionary of Mining, Mineral, and Related Terms*, Bureau of Mines, 1968; *Nuclear Terms: A Glossary*, 2d ed., Atomic Energy Commission; F. Casey, ed., *Compilation of Terms in Information Sciences Technology*, Federal Council for Science and Technology, 1970; *Glossary of Stinfo Terminology*, Office of Aerospace Research, U.S. Air Force, 1963; *Naval Dictionary of Electronic, Technical, and Imperative Terms*, Bureau of Naval Personnel, 1962; *ADP Glossary*, Department of the Navy, NAVSO P-3097.

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vertical turbine pump *See* deep-well pump. { 'vərd·ə·kəl 'tər·bən ˌpəmp }

vertical turret lathe [DES ENG] Similar in principle to the horizontal turret lathe but capable of handling heavier, bulkier workpieces; it is constructed with a rotary, horizontal worktable whose diameter (30–74 inches, or 76–188 centimeters) normally designates the capacity of the machine; a crossrail mounted above the worktable carries a turret, which indexes in a vertical plane with tools that may be fed either across or downward. { 'vərd·ə·kəl 'tə·rət ˌlāth }

vertical visibility [METEOROL] According to United States weather observing practice, the distance that an observer can see vertically into a surface-based obscuring phenomenon, such as fog, rain, or snow. { 'vərd·ə·kəl ˌviz·ə'bil·əd·ē }

vertical vorticity [FL MECH] The vertical component of the vorticity vector. { 'vərd·ə·kəl vȯr'tis·əd·ē }

verticillate [BOT] Whorled, in an arrangement resembling the spokes of a wheel. { ˌvərd·ə'si,lāt }

vertigo [MED] The sensation that the outer world is revolving about the patient (objective vertigo) or that the patient is moving in space (subjective vertigo). { 'vərd·əˌgō }

Vertisol [GEOL] A soil order formed in regoliths high in clay; subject to marked shrinking and swelling with changes in water content; low in organic content and high in bases. { 'vərd·əˌsōl }

very close pack ice [OCEANOGR] Sea ice so concentrated that there is little if any open water. { ˌverē ˌklōs 'pak ˌīs }

very high frequency [COMMUN] The band of frequencies from 30 to 300 megahertz in the radio spectrum, corresponding to wavelengths of 1 to 10 meters. Abbreviated VHF. { ˌverē ˌhī 'frē·kwən·sē }

very high-frequency omnidirectional radio range [NAV] A radio navigation aid operating at very high frequency and supplying bearing information for the entire 360° of azimuth. Abbreviated VOR. { ˌverē ˌhī 'frē·kwən·sē ˌäm·nə·də'rek·shən·əl 'rād·ē·ōˌrānj }

very high-frequency oscillator [ELECTR] An oscillator whose frequency lies in the range from a few to several hundred megahertz; it uses distributed, rather than lumped, impedances, such as parallel wire transmission lines or coaxial cables. { ˌverē ˌhī 'frē·kwən·sē 'äs·əˌlad·ər }

very high-frequency tuner [ELECTR] A tuner in a television receiver for reception of stations transmitting in the very-high-frequency band; it generally has 12 discrete positions corresponding to channels 2–13. { ˌverē ˌhī 'frē·kwən·sē 'tün·ər }

very large crude carrier [NAV ARCH] A liquid-cargo vessel in the 100,000- to 250,000-ton range. Abbreviated VLCC. { ˌverē ˌlärj 'krüd ˌkarē·ər }

very large-scale integrated circuit [ELECTR] A complex integrated circuit that contains at least 20,000 logic gates or 64,000 bits of memory. Abbreviated VLSI circuit. { ˌverē ˌlärj ˌskāl 'intəˌgrād·əd 'sər·kət }

very long-baseline interferometry [ELECTR] A method of improving angular resolution in the observation of radio sources; these are simultaneously observed by two radio telescopes which are very far apart, and the signals are recorded on magnetic tapes which are combined electronically or on a computer. Abbreviated VLBI. { ˌverē ˌlȯŋ ˌbās·līn ˌintər fə'räm·ə·trē }

very long-range material requirements [ORD] Items required by operational and organizational concepts established for a period 10 years hence and beyond. { ˌverē ˌlȯŋ ˌrānj mə'tirē·əl riˌkwīr·mənts }

very long-range radar [ELECTR] Equipment whose maximum range on a reflecting target of 10.76 square feet (1 square meter) normal to the signal path exceeds 800 miles (1300 kilometers), provided line of sight exists between the target and the radar. { ˌverē ˌlȯŋ ˌrānj 'rāˌdär }

very low frequency [COMMUN] The band of frequencies from 3 to 30 kilohertz in the radio spectrum, corresponding to wavelengths of 10 to 100 kilometers. Abbreviated VLF. { ˌverē ˌlō 'frē·kwən·sē }

very open pack ice [OCEANOGR] Sea ice whose concentration ranges between one-tenth and three-tenths of the sea surface. { ˌverē ˌōpən 'pak ˌīs }

very short-range radar [ELECTR] Equipment whose range on a reflecting target of 10.76 square feet (1 square meter) normal to the signal path is less than 50 miles (80 kilometers), provided line of sight exists between the target and the radar. { ˌverē ˌshȯrt ˌrānj 'rāˌdär }

vesicant [PHARM] An agent that causes blistering. { 'ves·ə·kənt }

vesication [MED] **1.** A blister. **2.** Formation of a blister. { ˌves·ə'kā·shən }

vesicle [BIOL] A small, thin-walled bladderlike cavity, usually filled with fluid. [GEOL] A cavity in lava formed by entrapment of a gas bubble during solidification. Also known as air sac; bladder; saccus; vacuole; wing. { 'ves·ə·kəl }

vesicular [SCI TECH] Characterized by abundant vesicles. { və'sik·yə·lər }

vesicular film [GRAPHICS] A film that is sensitive to ultraviolet light and is developed by heat, without chemicals. { və'sik·yə·lər 'film }

vesicular structure [PETR] A structure that is common in many volcanic rocks and which forms when magma is brought to or near the earth's surface; may form a structure with small cavities, or produce a pumiceous structure or a scoriaceous structure. { və'sik·yə·lər 'strək·chər }

Vespertilionidae [VERT ZOO] The common bats, a large cosmopolitan family of the Chiroptera characterized by a long tail, extending to the edge of the uropatagium; almost all members are insect-eating. { ˌvespərˌtilē'anəˌdē }

vespertine [VERT ZOO] Active in the evening. { 'vespərˌtīn }

Vespidae [INV ZOO] A widely distributed family of Hymenoptera in the superfamily Vespoidea including hornets, yellow jackets, and potter wasps. { 'vespəˌdē }

Vespoidea [INV ZOO] A superfamily of wasps in the suborder Apocrita. { ve'spȯidēə }

vessel [BOT] A water-conducting tube or duct in the xylem. [ENG] A container or structural envelope in which materials are processed, treated, or stored; for example, pressure vessels, reactor vessels, agitator vessels, and storage vessels (tanks). [NAV ARCH] Any craft that can carry people or cargo over the surface of the water. { 'ves·əl }

vessel segment [BOT] A single cell or unit of a plant vessel. { 'ves·əl ˌseg·mənt }

vessel traffic service [NAV] A program that provides marine traffic management of an advisory nature, and occasional emergency control, to reduce collisions and strandings in heavily trafficked ports. { 'ves·əl 'traf·ik ˌsərvəs }

Vesta [ASTRON] The third-largest asteroid with a diameter of about 300 miles (500 kilometers), mean distance from the sun of 2.362 astronomical units, and a unique surface composition resembling basaltic, achondritic meteorites. { 'ves·tə }

vestibular apparatus [ANAT] The anatomical structures concerned with the vestibular portion of the eighth cranial nerve; includes the saccule, utricle, semicircular canals, vestibular nerve, and vestibular nuclei of the ear. { və'stib·yə·lər ˌapəˌradəs }

vestibular membrane of Reissner *See* Reissner's membrane. { və'stib·yə·lər 'mem,brān əv 'ris·nər }

vestibular nerve [ANAT] A somatic sensory branch of the auditory nerve, which is distributed about the ampullae of the semicircular canals, macula sacculi, and macula utriculi. { və'stib·yə·lər 'nərv }

vestibular reflexes [PHYSIO] The responses of the vestibular apparatus to strong stimulation; responses include pallor, nausea, vomiting, and postural changes. { və'stib·yə·lər 'rēˌflek·səz }

vestibule [ANAT] **1.** The central cavity of the bony labyrinth of the ear. **2.** The parts of the membranous labyrinth within the cavity of the bony labyrinth. **3.** The space between the labia minora. **4.** *See* buccal cavity. [BUILD] A hall or chamber between the outer door and the interior, or rooms, of a building. { 'ves·təˌbyül }

vestibule school [IND ENG] A school organized by an industrial concern to train new employees in specific tasks or prepare employees for promotion. { 'ves·təˌbyül ˌskül }

vestibule training [IND ENG] A procedure used in operator training in which the training location is separate from the main productive areas of the plant; includes student carrels, lecture rooms, and in many instances the same type of equipment that the trainee will use in the work station. { 'ves·təˌbyül ˌtrān·iŋ }

vestibulocerebellar [ANAT] Pertaining to the vestibular fibers and the cerebellum. { vəˌstib·yə·lōˌserə'belər }